



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/570,663	03/06/2006	Akihiko Endo	P29122	1239
7055 7590 03/27/2008 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER				
LEE, HSIEN MING				
ART UNIT		PAPER NUMBER		
2823				
NOTIFICATION DATE		DELIVERY MODE		
03/27/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com
pto@gbpatent.com

Office Action Summary

Application No.

10/570,663

Applicant(s)

ENDO ET AL.

Examiner

Hsien-ming Lee

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3, 5, 6, 12 and 18 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☒ Claim(s) 5 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Remarks

1. Claims 1, 3, 5, 6, 12 and 18 are pending in the application, wherein claims 6 and 18 are withdrawn from consideration.

Claim Objections

2. Claim 3 is objected to, as a result of the amendment of claim 1, because of the following informalities: "in-consistent term, i.e. " said epitaxial layer" (claim 3, line 2) versus "a silicon epitaxial layer" (claim 1, line 2) Appropriate correction is required.
3. Claim 1 is objected to because of the following informalities:

At lines 5 and 7, changing "said epitaxial layer" into – said silicon epitaxial layer -- is suggested.

At lines 16 and 17, changing "said active layer wafer" into – said active layer silicon wafer – is suggested. (refers to claim 1, line 3, wherein it recites "an active layer silicon wafer.")

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, at line 3, the limitation "having a concentration of 5×10^{18} atoms/cm³ or greater " renders indefinite because a corresponding amended limitation to " or greater" did not meet the description requirement due to the fact that the phrase " or greater" had **no upper limit** and caused the claim to read literally on embodiments **outside** the " 2×10^{19} atoms/cm³" range (see original specification, **page 9, line 8**, wherein it discloses the boron concentration range is in "a range of 8×10^{18} atoms/cm³ to 2×10^{19} atoms/cm³"). See M.P.E.P. 2163.05, III

In claim 1, at line 19, the limitation " at a temperature of 1,000 °C or higher " renders indefinite because a corresponding amended limitation to " or higher" did not meet the description requirement due to the fact that the phrase " or higher " had **no upper limit** and caused the claim to read literally on embodiments **outside** the " 1200 °C " range (see original specification, **page 13, lines 25~ 26**, wherein it discloses the temperature is in "a range of 1100 °C to 1200 °C"). See M.P.E.P. 2163.05, III

In claim 1, at line 18, the limitation " for a duration of one hour or longer " renders indefinite because a corresponding amended limitation to " or longer" did not meet the description requirement due to the fact that the phrase " or longer " had **no upper limit** and caused the claim to read literally on embodiments **outside** the " four hours " range (see original specification, **page 13, lines 26~ 27**, wherein it discloses the time duration is in "a range of one hour to four hours"). See M.P.E.P. 2163.05, III

In claim 3, at line 2, the limitation " is 0.3 μm or thicker " renders indefinite because a corresponding amended limitation to " or thicker" did not meet the description

requirement due to the fact that the phrase " or thicker " had **no upper limit** and caused the claim to read literally on embodiments **outside** the "2 μm " range (see original specification, **page 9, lines 23-25**, wherein it discloses the thickness of the epitaxial layer is in a range of 0.5 μm ~ 1.5 μm for thin-film SOI and of 1 μm ~ 2 μm for thick-film SOI). See M.P.E.P. 2163.05, III

Allowable Subject Matter

6. Claim 1 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.
7. Claim 3 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
8. Claims 5 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter:

None of the prior art of record, either taken alone or by combination, teaches or suggests growing a silicon epitaxial layer comprising boron having a concentration of 8×10^{18} atoms/cm³ on an active layer silicon wafer and after the insulating layer formation on the active layer silicon wafer or the cleavage of the part of the active layer silicon wafer, performing an annealing treatment on the active layer silicon wafer or bonded

wafer at a temperature of 1000 °C and for a duration of one hour in a reducing gas atmosphere comprising hydrogen.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on Monday, Tuesday and Thursday (7:30 ~ 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hsien-ming Lee/
Primary Examiner
Art Unit 2823

March 17, 2008